Data Validation Checklist
Semivolatile Organic Analyses

Project:	35TH Avenue Superfund Site	Project No:	60430028; 1
Laboratory:	TestAmerica – Savannah, GA	Job ID.:	680-106200-4
Method:	SW-846 8270D Low-Level (PAH)	Associated Samples:	Refer to **Attachment A** (Sample Summary)
Matrix:	Soil	Samples Collected:	10/07/2014
Reviewer:	Karen M Trujillo, URS Group, Inc.	Date:	08/06/2015
Concurrence[1]:	Martha Meyers-Lee, URS Group, Inc.	Date:	08/07/2015

Review Questions	Yes	No	N/A	Samples (Analytes) Affected/Comments	Flag
1. Were sample storage and preservation requirements met? If temperature >6°C, then J/UJ flag results.	✓				
2. Were all COC records signed and integrity seals intact, indicating that COC was maintained for all samples?	✓				
3. Were there any problems noted in laboratory data package concerning condition of samples upon receipt?		✓			
4. Do any soil samples contain more than 50% water? If yes, then results are to be reported on a wet-weight basis.		✓			
5. Were holding times met (≤7 and 14 days from collection to extraction for aqueous and solid samples, respectively; ≤40 days from extraction to analysis)? If not, then J/UJ flag sample results. If grossly (2x) exceeded, then flag J/R.	✓				
6. Were results for all project-specified target analytes reported?	✓				
7. Were project-specified Reporting Limits achieved for undiluted sample analyses?	✓				
8. Were samples with analyte concentrations exceeding the calibration range of the instrument re-analyzed at a higher dilution? If not, then J flag sample result.	✓				
9. Was a method blank extracted with each batch (i.e., one per 20 samples, per batch, per matrix and per level)?	✓				
10. Were target analytes detected in the method blank?		✓			
11. Are equipment/rinsate blanks associated with every sample? If no, note in DV report.		✓		According to the QAPP, a rinsate blank is to be collected after each decontamination event, which occurs once per week per the client. A rinsate blank is not associated with this sampling event. Blank contamination will be evaluated based on method blank results.	
12. Were target analytes detected in equipment/rinsate blanks?			✓		
13. Were analytes detected in samples below the blank contamination action level? If yes, U flag positive sample results <5x associated blank concentration (10x for common blank contaminants–phthalates)			✓	Blank contamination does not exist.	

[1] Independent technical reviewer

Data Validation Checklist (Continued)

Review Questions	Yes	No	N/A	Samples (Analytes) Affected/Comments	Flag
14. Is a field duplicate associated with this Job?		✓			
15. Was precision deemed acceptable as defined by the project plans?			✓		
16. Were DFTPP ion abundance criteria (i.e., Table 3 of SW-846 8270D) met? If no, professional judgment may be applied to determine to what extent the data may be utilized.	✓			Alternate tuning criteria were used by the laboratory (i.e., EPA Method 525.2). All ion abundance criteria were met per EPA Method 525.2.	
17. Were samples analyzed within 12 hours of the DFTPP tune? If no, professional judgment may be applied to determine to what extent the data may be utilized.	✓				
18. Were initial and continuing calibration standards analyzed at the proper frequency for each instrument? • Ensure that a minimum of five standards are used for the initial calibration. If no, use professional judgment to determine the effect on the data and note in the reviewer narrative. • An initial calibration is to be associated with each sample analysis. • A continuing calibration standard is to be analyzed for every 12 hours of sample analysis per instrument.	✓			• Instrument ID: CMSY • Initial Calibration: 10/07/2014 • ICV: 10/07/14 @ 16:25 • CCV: 10/17/14 @ 09:52	
19. Were calibration results within laboratory/project specifications? • ICAL (Criteria: ≤20 mean %RSD (≤50% for poor performers), OR r≥0.995, OR r^2≥0.99, and RRF ≥0.050 (≥0.010 for poor performers)): o If %RSD>20 (>50% for poor performers), or r <0.995, or r^2 <0.995, then J flag positive results and UJ flag non-detects o If mean RRF <0.050 (<0.010 for poor performers), then J flag positive results and R flag non-detects (unless the lab analyzed a detectability check standard) • ICV and CCV (ICV Criteria: ≤ ±30%D; CCV Criteria: ≤ ±20%D (≤50% for poor performers) and RF ≥0.050 (≥0.010 for poor performers)): o If %D> Control Limit (>50% for poor performers), then J flag positive results and UJ flag non-detects o If RF <0.050 (<0.010 for poor performers), then UJ flag non-detected semivolatile target compounds		✓		CCV of 10/17/14 @ 09:52 (CCVIS 354069/2), instrument CMSY. Indeno[1,2,3-cd]pyrene @ -25.8%D (Lab: ≤20, Project: ≤20). Negative bias. J and UJ-Flag all positive and non-detect indeno[1,2,3-cd]pyrene sample results, as all samples are associated with this CCV.	J/UJ
20. Was a LCS prepared for each batch and matrix?	✓				
21. Were LCS recoveries within lab control limits? If no, J flag positive results when %R >Upper Control Limit (UCL) and J/R flag results when %R <Lower Control Limit (LCL).	✓				
22. Were LCS/LCSD RPD within lab specifications? If no, J flag positive results and UJ flag non-detects	✓				
23. Was a MS/MSD pair extracted at the proper frequency (one per 20 samples per batch)?	✓				
24. Is the MS/MSD parent sample a project-specific sample?	✓			Batch 353671: 680-106200-51 [CV0753B-CS (0-4")], MS/MSD	

Data Validation Checklist (Continued)

Review Questions	Yes	No	N/A	Samples (Analytes) Affected/Comments	Flag
25. For all analytes with native sample concentrations < 4 x spiking level, were MS and MSD recoveries within laboratory/project specifications? *Only QC results for project samples that are reported under this Job ID are evaluated.* • If the native sample concentration > 4x spiking level, then an evaluation of interference is not possible. • If either MS or MSD recovery meets control limits, qualification of data is not warranted. • MS and MSD %R<10: J and R Flag positive and ND results, respectively • MS and MSD %R >10 and <LCL: J Flag positive and UJ flag non-detect results • MS and MSD R% >UCL (or 140): J Flag positive results		✓		CV0753B-CS (0-4"), 680-106200-51: • 1-Methylnaphthalene MS and MSD @33 and 7 %R (36-130%R). J-Flag • 2-Methylnaphthalene MS and MSD @70 and 34 %R (42-130%R). Qualification of data is not required[2]. • Anthracene MS and MSD @35 and 34 %R (42-146%R). J-Flag • Benzo[a]anthracene MS and MSD @6 and 14 %R (39-157%R). J-Flag • Benzo[a]pyrene MS and MSD @10 and 6 %R (41-158%R). J-Flag • Benzo[b]fluoranthene MS and MSD @-6 and 4 %R (35-152%R). J-Flag • Benzo[g,h,i]perlyene MS and MSD @9 and 8 %R (32-150%R). J-Flag • Benzo[k]fluoranthene MS and MSD @36 and 23 %R (38-148%R). J-Flag • Chrysene MS and MSD @6 and -3 %R (38-147%R). J-Flag • Dibenz(a,h)anthracene MS and MSD @25 and 23 %R (32-155%R). J-Flag • Fluoranthene MS and MSD @-6 and12 %R (36-147%R). J-Flag • Indeno[1,2,3-cd]pyrene MS and MSD @12 and 11 %R (35-148%R). J-Flag • Phenanthrene MS and MSD @-59 and -49%R (40-135%R). J-Flag • Pyrene MS and MSD @7 and 22%R (38-145%R). J-Flag	J
26. For all analytes with native sample concentrations < 4 x spiking level, were laboratory criteria met for precision during the MS and MSD analyses? *Only QC results for project samples that are reported under this Job ID are evaluated.* • If the native sample concentration > 4x spiking level, then an evaluation of interference is not possible. • If %RPD > UCL, J flag positive result and UJ flag non-detect result	✓				
27. Were surrogate recoveries within lab/project specifications? • If %R for 1 Acid or BN surrogates <10, then J flag positive and R flag non-detect associated sample results (i.e., acid or BN results) • If 2 or more Acid or BN %R >UCL, then J flag positive associated sample results (i.e., acid or BN results) • If 2 or more Acid or BN %R ≥10%, but <LCL, then J flag		✓		Surrogate o-terphenyl was not recovered (0%) during the diluted analysis of samples 680-108230-51, -55, - 56, -58, and -62. Qualification of sample results is not warranted, as the surrogate compound was diluted out of the samples.	

[2] The recovery of either MS or MSD met control limits.

Data Validation Checklist (Continued)

Review Questions	Yes	No	N/A	Samples (Analytes) Affected/Comments	Flag
positive and UJ flag non-detect associated sample results (i.e., acid or BN results) • If 2 or more Acid or BN , with 1 %R >UCL and 1 %R ≥10%, but <LCL, then J flag positive and UJ flag non-detect associated sample results (i.e., acid or BN results)					
28. Were internal standard (IS) results within lab/project specifications? • If IS area counts are less than 50% of the midpoint calibration standard, then J flag positive and UJ flag non-detect associated sample results • If IS area counts are greater than 100% of the midpoint calibration standard, then J flag positive results • If extremely low area counts are reported or performance exhibits a major abrupt drop-off, then a severe loss of sensitivity is indicated, J flag positive and R flag non-detect results • If retention time of sample's internal standard is not within 30 seconds of the associated calibration standard, R flag associated data. • The chromatographic profile for that sample must be examined to determine if any false positives or negatives exists. For shifts of large magnitude, the reviewer may consider partial or total rejection of the data for that sample fraction. Positive results need not be qualified as R, if mass spectral criteria are met.	✓				
29. Were lab comments included in report?	✓			Refer to **Attachment B** (Case Narrative)	
Comments: The data validation was conducted in accordance with the *Non-Industrial Use Property Sampling Event QAPP for the 35th Avenue Removal Site, Birmingham, Alabama, Revision 1* (OTIE, October 2012). The data review process was modeled after the *USEPA Contract Laboratory Program (CLP) National Functional Guidelines (NFG) for Organic Methods Data Review* (EPA, October 1999) and *USEPA CLP NFG for Low Concentration Organic Methods Data Review* (EPA, June 2001). Sample results have been qualified based on the results of the data review process (**Attachment C**). Criteria for acceptability of data were based upon available site information, analytical method requirements, guidance documents, and professional judgment.					

DV Flag Definitions:

J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
R The sample results are unusable. The analyte may or may not be present in the sample.
U The analyte was analyzed for, but was not detected above the associated level; blank contamination may exist.
UJ The analyte was not detected above the limit, and the limit is approximate and may be inaccurate or imprecise.

ATTACHMENT A

SAMPLE SUMMARY

SAMPLE SUMMARY

Client: Oneida Total Integrated Enterprises LLC

Job Number: 680-106200-4
Sdg Number: 680-106200-04

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
680-106200-51	CV0753B-CS (0-4")	Solid	10/07/2014 1620	10/11/2014 0933
680-106200-51MS	CV0753B-CS (0-4")	Solid	10/07/2014 1620	10/11/2014 0933
680-106200-51MSD	CV0753B-CS (0-4")	Solid	10/07/2014 1620	10/11/2014 0933
680-106200-52	CV0613E-CS (0-4")	Solid	10/07/2014 1540	10/11/2014 0933
680-106200-53	CV0509Y-CS (0-4")	Solid	10/07/2014 1130	10/11/2014 0933
680-106200-54	CV0509Y-CSD (0-4")	Solid	10/07/2014 1130	10/11/2014 0933
680-106200-55	CV0509X-CS6	Solid	10/07/2014 1020	10/11/2014 0933
680-106200-56	CV0509X-CS12	Solid	10/07/2014 1030	10/11/2014 0933
680-106200-57	CV0509X-CS18	Solid	10/07/2014 1040	10/11/2014 0933
680-106200-58	CV0613A-CS6	Solid	10/07/2014 1300	10/11/2014 0933
680-106200-59	CV0613A-CS12	Solid	10/07/2014 1310	10/11/2014 0933
680-106200-60	CV0613A-CS18	Solid	10/07/2014 1320	10/11/2014 0933
680-106200-61	CV0613A-CS24	Solid	10/07/2014 1330	10/11/2014 0933
680-106200-62	CV0509KK-CS6	Solid	10/07/2014 1410	10/11/2014 0933

ATTACHMENT B

CASE NARRATIVE

CASE NARRATIVE
Client: Oneida Total Integrated Enterprises LLC
Project: 35th Avenue Superfund Site
Report Number: 680-106200-4

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In the event of interference or analytes present at high concentrations, samples may be diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

No additional analytical or quality issues were noted, other than those described below or in the Definitions/Glossary page.

RECEIPT

The samples were received on 10/11/2014 9:33 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 4 coolers at receipt time were 0.8º C, 1.8º C, 4.8º C and 5.2º C.

SEMIVOLATILE ORGANIC COMPOUNDS (GC/MS) LOW LEVEL PAH

Samples CV0753B-CS (0-4") (680-106200-51), CV0509X-CS6 (680-106200-55), CV0509X-CS12 (680-106200-56), CV0509X-CS18 (680-106200-57), CV0613A-CS6 (680-106200-58), CV0613A-CS12 (680-106200-59), CV0613A-CS18 (680-106200-60), CV0613A-CS24 (680-106200-61) and CV0509KK-CS6 (680-106200-62) were analyzed for Semivolatile Organic Compounds (GC/MS) Low level PAH in accordance with EPA SW846 Method 8270D.

Method(s) 8270D_LL_PAH: Manual integration was performed on the following sample(s): CV0509KK-CS6 (680-106200-62), CV0509X-CS12 (680-106200-56), CV0509X-CS18 (680-106200-57), CV0509X-CS6 (680-106200-55), CV0613A-CS12 (680-106200-59), CV0613A-CS18 (680-106200-60), CV0613A-CS24 (680-106200-61), CV0613A-CS6 (680-106200-58), CV0753B-CS (0-4") (680-106200-51).

Method(s) 8270D_LL_PAH: The following sample(s) was diluted due to the nature of the sample matrix : CV0509KK-CS6 (680-106200-62), CV0509X-CS12 (680-106200-56), CV0509X-CS18 (680-106200-57), CV0509X-CS6 (680-106200-55), CV0613A-CS6 (680-106200-58), CV0753B-CS (0-4") (680-106200-51), CV0753B-CS (0-4") (680-106200-51 MS), CV0753B-CS (0-4") (680-106200-51 MSD). As such, surrogate recoveries are below the calibration range or are not reported, and elevated reporting limits (RLs) are provided.

Method(s) 8270D_LL_PAH: The continuing calibration verification (CCV) analyzed in batch 354069 was outside the method criteria for the following analyte(s): Indeno[1,2,3-cd]pyrene and o-Terphenyl. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

Several analytes recoveries are outside criteria low for the MS and/or MSD of sample CV0753B-CS (0-4") (680-106200-51) in batch 680-354069.

The presence of the '4' qualifier indicates analytes where the concentration in the unspiked sample exceeded four times the spiking amount.

Refer to the QC report for details.

METALS (ICP)

Samples CV0753B-CS (0-4") (680-106200-51), CV0613E-CS (0-4") (680-106200-52), CV0509Y-CS (0-4") (680-106200-53), CV0509Y-CSD (0-4") (680-106200-54), CV0509X-CS6 (680-106200-55), CV0509X-CS12 (680-106200-56), CV0509X-CS18 (680-106200-57), CV0613A-CS6 (680-106200-58), CV0613A-CS12 (680-106200-59), CV0613A-CS18 (680-106200-60), CV0613A-CS24 (680-106200-61) and CV0509KK-CS6 (680-106200-62) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C.

Aluminum, Arsenic and Iron have recovery outside criteria high for the MS of sample CV0753B-CS (0-4") (680-106200-51) in batch 680-353949.

Lead recovery is outside criteria low for the MSD of sample CV0753B-CS (0-4") (680-106200-51) in batch 680-353949. Aluminum and Iron failed the recovery criteria high.

Refer to the QC report for details.

PERCENT SOLIDS/MOISTURE

Samples CV0753B-CS (0-4") (680-106200-51), CV0613E-CS (0-4") (680-106200-52), CV0509Y-CS (0-4") (680-106200-53), CV0509Y-CSD (0-4") (680-106200-54), CV0509X-CS6 (680-106200-55), CV0509X-CS12 (680-106200-56), CV0509X-CS18 (680-106200-57), CV0613A-CS6 (680-106200-58), CV0613A-CS12 (680-106200-59), CV0613A-CS18 (680-106200-60), CV0613A-CS24 (680-106200-61) and CV0509KK-CS6 (680-106200-62) were analyzed for Percent Solids/Moisture in accordance with TestAmerica SOP.

ATTACHMENT C

QUALIFIED SAMPLE RESULTS

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah | Job No.: 680-106200-4

SDG No.: 680-106200-04

Client Sample ID: CV0753B-CS (0-4") | Lab Sample ID: 680-106200-51

Matrix: Solid | Lab File ID: 1YJ1713.D

Analysis Method: 8270D_LL_PAH | Date Collected: 10/07/2014 16:20

Extract. Method: 3546 | Date Extracted: 10/15/2014 14:21

Sample wt/vol: 30.01(g) | Date Analyzed: 10/17/2014 14:03

Con. Extract Vol.: 1(mL) | Dilution Factor: 10

Injection Volume: 2(uL) | Level: (low/med) Low

% Moisture: 12.7 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 354069 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
83-32-9	Acenaphthene	77	U	77	38
208-96-8	Acenaphthylene	77	U	77	38
120-12-7	Anthracene	59	~~J~~ J	77	38
56-55-3	Benzo[a]anthracene	290	J	77	38
50-32-8	Benzo[a]pyrene	230	J	77	14
205-99-2	Benzo[b]fluoranthene	390	J	77	38
191-24-2	Benzo[g,h,i]perylene	160	J	77	38
207-08-9	Benzo[k]fluoranthene	120	J	77	23
218-01-9	Chrysene	390	J	77	38
53-70-3	Dibenz(a,h)anthracene	71	~~J~~ J	77	38
206-44-0	Fluoranthene	400	J	77	38
86-73-7	Fluorene	77	U	77	38
193-39-5	Indeno[1,2,3-cd]pyrene	110	J	77	38
90-12-0	1-Methylnaphthalene	350	J	77	36
91-57-6	2-Methylnaphthalene	250		77	38
91-20-3	Naphthalene	170		77	38
85-01-8	Phenanthrene	670	J	77	27
129-00-0	Pyrene	370	J	77	38

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	0	D	36-131

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah | Job No.: 680-106200-4

SDG No.: 680-106200-04

Client Sample ID: CV0509X-CS6 | Lab Sample ID: 680-106200-55

Matrix: Solid | Lab File ID: 1YJ1723.D

Analysis Method: 8270D_LL_PAH | Date Collected: 10/07/2014 10:20

Extract. Method: 3546 | Date Extracted: 10/15/2014 14:21

Sample wt/vol: 30.03(g) | Date Analyzed: 10/17/2014 17:45

Con. Extract Vol.: 1(mL) | Dilution Factor: 10

Injection Volume: 2(uL) | Level: (low/med) Low

% Moisture: 19.4 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 354069 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
83-32-9	Acenaphthene	84		83	41
208-96-8	Acenaphthylene	83	U	83	41
120-12-7	Anthracene	210		83	41
56-55-3	Benzo[a]anthracene	1100		83	41
50-32-8	Benzo[a]pyrene	1100		83	15
205-99-2	Benzo[b]fluoranthene	1600		83	41
191-24-2	Benzo[g,h,i]perylene	690		83	41
207-08-9	Benzo[k]fluoranthene	560		83	25
218-01-9	Chrysene	1200		83	41
53-70-3	Dibenz(a,h)anthracene	310		83	41
206-44-0	Fluoranthene	1900		83	41
86-73-7	Fluorene	75	J	83	41
193-39-5	Indeno[1,2,3-cd]pyrene	520	J	83	41
90-12-0	1-Methylnaphthalene	60	J	83	38
91-57-6	2-Methylnaphthalene	75	J	83	41
91-20-3	Naphthalene	63	J	83	41
85-01-8	Phenanthrene	860		83	30
129-00-0	Pyrene	1800		83	41

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	0	D	36-131

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah | Job No.: 680-106200-4

SDG No.: 680-106200-04

Client Sample ID: CV0509X-CS12 | Lab Sample ID: 680-106200-56

Matrix: Solid | Lab File ID: 1YJ1724.D

Analysis Method: 8270D_LL_PAH | Date Collected: 10/07/2014 10:30

Extract. Method: 3546 | Date Extracted: 10/15/2014 14:21

Sample wt/vol: 30.03(g) | Date Analyzed: 10/17/2014 18:07

Con. Extract Vol.: 1(mL) | Dilution Factor: 10

Injection Volume: 2(uL) | Level: (low/med) Low

% Moisture: 10.3 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 354069 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
83-32-9	Acenaphthene	53	J	75	37
208-96-8	Acenaphthylene	75	U	75	37
120-12-7	Anthracene	94		75	37
56-55-3	Benzo[a]anthracene	390		75	37
50-32-8	Benzo[a]pyrene	350		75	13
205-99-2	Benzo[b]fluoranthene	510		75	37
191-24-2	Benzo[g,h,i]perylene	290		75	37
207-08-9	Benzo[k]fluoranthene	240		75	22
218-01-9	Chrysene	400		75	37
53-70-3	Dibenz(a,h)anthracene	150		75	37
206-44-0	Fluoranthene	690		75	37
86-73-7	Fluorene	48	J	75	37
193-39-5	Indeno[1,2,3-cd]pyrene	190	J	75	37
90-12-0	1-Methylnaphthalene	75	U	75	35
91-57-6	2-Methylnaphthalene	40	J	75	37
91-20-3	Naphthalene	75	U	75	37
85-01-8	Phenanthrene	420		75	27
129-00-0	Pyrene	620		75	37

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	0	D	36-131

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah | Job No.: 680-106200-4

SDG No.: 680-106200-04

Client Sample ID: CV0509X-CS18 | Lab Sample ID: 680-106200-57

Matrix: Solid | Lab File ID: 1YJ1725.D

Analysis Method: 8270D_LL_PAH | Date Collected: 10/07/2014 10:40

Extract. Method: 3546 | Date Extracted: 10/15/2014 14:21

Sample wt/vol: 30.01(g) | Date Analyzed: 10/17/2014 18:29

Con. Extract Vol.: 1(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | Level: (low/med) Low

% Moisture: 11.4 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 354069 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
83-32-9	Acenaphthene	7.6	U	7.6	3.7
208-96-8	Acenaphthylene	7.6	U	7.6	3.7
120-12-7	Anthracene	7.6	U	7.6	3.7
56-55-3	Benzo[a]anthracene	7.0	J	7.6	3.7
50-32-8	Benzo[a]pyrene	7.6	U	7.6	1.4
205-99-2	Benzo[b]fluoranthene	12		7.6	3.7
191-24-2	Benzo[g,h,i]perylene	6.3	J	7.6	3.7
207-08-9	Benzo[k]fluoranthene	4.7	J	7.6	2.3
218-01-9	Chrysene	9.8		7.6	3.7
53-70-3	Dibenz(a,h)anthracene	7.6	U	7.6	3.7
206-44-0	Fluoranthene	12		7.6	3.7
86-73-7	Fluorene	7.6	U	7.6	3.7
193-39-5	Indeno[1,2,3-cd]pyrene	4.8	~~J~~ J	7.6	3.7
90-12-0	1-Methylnaphthalene	7.6	U	7.6	3.5
91-57-6	2-Methylnaphthalene	7.6	U	7.6	3.7
91-20-3	Naphthalene	7.6	U	7.6	3.7
85-01-8	Phenanthrene	6.3	J	7.6	2.7
129-00-0	Pyrene	13		7.6	3.7

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	91		36-131

FORM I
GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah | Job No.: 680-106200-4

SDG No.: 680-106200-04

Client Sample ID: CV0613A-CS6 | Lab Sample ID: 680-106200-58

Matrix: Solid | Lab File ID: 1YJ1726.D

Analysis Method: 8270D_LL_PAH | Date Collected: 10/07/2014 13:00

Extract. Method: 3546 | Date Extracted: 10/15/2014 14:21

Sample wt/vol: 30.02(g) | Date Analyzed: 10/17/2014 18:52

Con. Extract Vol.: 1(mL) | Dilution Factor: 10

Injection Volume: 2(uL) | Level: (low/med) Low

% Moisture: 7.0 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 354069 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
83-32-9	Acenaphthene	72	U	72	35
208-96-8	Acenaphthylene	49	J	72	35
120-12-7	Anthracene	92		72	35
56-55-3	Benzo[a]anthracene	380		72	35
50-32-8	Benzo[a]pyrene	440		72	13
205-99-2	Benzo[b]fluoranthene	850		72	35
191-24-2	Benzo[g,h,i]perylene	320		72	35
207-08-9	Benzo[k]fluoranthene	250		72	21
218-01-9	Chrysene	490		72	35
53-70-3	Dibenz(a,h)anthracene	180		72	35
206-44-0	Fluoranthene	510		72	35
86-73-7	Fluorene	72	U	72	35
193-39-5	Indeno[1,2,3-cd]pyrene	220	J	72	35
90-12-0	1-Methylnaphthalene	40	J	72	33
91-57-6	2-Methylnaphthalene	54	J	72	35
91-20-3	Naphthalene	54	J	72	35
85-01-8	Phenanthrene	250		72	26
129-00-0	Pyrene	600		72	35

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	0	D	36-131

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Lab Name: TestAmerica Savannah | Job No.: 680-106200-4

SDG No.: 680-106200-04

Client Sample ID: CV0613A-CS12 | Lab Sample ID: 680-106200-59

Matrix: Solid | Lab File ID: 1YJ1727.D

Analysis Method: 8270D_LL_PAH | Date Collected: 10/07/2014 13:10

Extract. Method: 3546 | Date Extracted: 10/15/2014 14:21

Sample wt/vol: 30.04(g) | Date Analyzed: 10/17/2014 19:14

Con. Extract Vol.: 1(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | Level: (low/med) Low

% Moisture: 7.7 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 354069 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
83-32-9	Acenaphthene	22		7.2	3.6
208-96-8	Acenaphthylene	7.2	U	7.2	3.6
120-12-7	Anthracene	44		7.2	3.6
56-55-3	Benzo[a]anthracene	120		7.2	3.6
50-32-8	Benzo[a]pyrene	110		7.2	1.3
205-99-2	Benzo[b]fluoranthene	150		7.2	3.6
191-24-2	Benzo[g,h,i]perylene	79		7.2	3.6
207-08-9	Benzo[k]fluoranthene	67		7.2	2.2
218-01-9	Chrysene	130		7.2	3.6
53-70-3	Dibenz(a,h)anthracene	34		7.2	3.6
206-44-0	Fluoranthene	230		7.2	3.6
86-73-7	Fluorene	21		7.2	3.6
193-39-5	Indeno[1,2,3-cd]pyrene	57	J	7.2	3.6
90-12-0	1-Methylnaphthalene	20		7.2	3.4
91-57-6	2-Methylnaphthalene	21		7.2	3.6
91-20-3	Naphthalene	27		7.2	3.6
85-01-8	Phenanthrene	190		7.2	2.6
129-00-0	Pyrene	220		7.2	3.6

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	92		36-131

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GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah | Job No.: 680-106200-4

SDG No.: 680-106200-04

Client Sample ID: CV0613A-CS18 | Lab Sample ID: 680-106200-60

Matrix: Solid | Lab File ID: 1YJ1728.D

Analysis Method: 8270D_LL_PAH | Date Collected: 10/07/2014 13:20

Extract. Method: 3546 | Date Extracted: 10/15/2014 14:21

Sample wt/vol: 30.01(g) | Date Analyzed: 10/17/2014 19:36

Con. Extract Vol.: 1(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | Level: (low/med) Low

% Moisture: 10.7 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 354069 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
83-32-9	Acenaphthene	7.5	U	7.5	3.7
208-96-8	Acenaphthylene	7.5	U	7.5	3.7
120-12-7	Anthracene	3.8	J	7.5	3.7
56-55-3	Benzo[a]anthracene	28		7.5	3.7
50-32-8	Benzo[a]pyrene	29		7.5	1.3
205-99-2	Benzo[b]fluoranthene	49		7.5	3.7
191-24-2	Benzo[g,h,i]perylene	27		7.5	3.7
207-08-9	Benzo[k]fluoranthene	16		7.5	2.2
218-01-9	Chrysene	37		7.5	3.7
53-70-3	Dibenz(a,h)anthracene	9.6		7.5	3.7
206-44-0	Fluoranthene	45		7.5	3.7
86-73-7	Fluorene	7.5	U	7.5	3.7
193-39-5	Indeno[1,2,3-cd]pyrene	17	J	7.5	3.7
90-12-0	1-Methylnaphthalene	4.7	J	7.5	3.5
91-57-6	2-Methylnaphthalene	5.5	J	7.5	3.7
91-20-3	Naphthalene	4.5	J	7.5	3.7
85-01-8	Phenanthrene	22		7.5	2.7
129-00-0	Pyrene	49		7.5	3.7

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	103		36-131

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GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah | Job No.: 680-106200-4

SDG No.: 680-106200-04

Client Sample ID: CV0613A-CS24 | Lab Sample ID: 680-106200-61

Matrix: Solid | Lab File ID: 1YJ1729.D

Analysis Method: 8270D_LL_PAH | Date Collected: 10/07/2014 13:30

Extract. Method: 3546 | Date Extracted: 10/15/2014 14:21

Sample wt/vol: 30.01(g) | Date Analyzed: 10/17/2014 19:58

Con. Extract Vol.: 1(mL) | Dilution Factor: 1

Injection Volume: 2(uL) | Level: (low/med) Low

% Moisture: 12.8 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 354069 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
83-32-9	Acenaphthene	7.7	U	7.7	3.8
208-96-8	Acenaphthylene	7.7	U	7.7	3.8
120-12-7	Anthracene	7.7	U	7.7	3.8
56-55-3	Benzo[a]anthracene	7.7	U	7.7	3.8
50-32-8	Benzo[a]pyrene	3.7	J	7.7	1.4
205-99-2	Benzo[b]fluoranthene	5.7	J	7.7	3.8
191-24-2	Benzo[g,h,i]perylene	3.8	J	7.7	3.8
207-08-9	Benzo[k]fluoranthene	2.9	J	7.7	2.3
218-01-9	Chrysene	4.2	J	7.7	3.8
53-70-3	Dibenz(a,h)anthracene	7.7	U	7.7	3.8
206-44-0	Fluoranthene	7.7	U	7.7	3.8
86-73-7	Fluorene	7.7	U	7.7	3.8
193-39-5	Indeno[1,2,3-cd]pyrene	7.7	~~U~~ UJ	7.7	3.8
90-12-0	1-Methylnaphthalene	7.7	U	7.7	3.6
91-57-6	2-Methylnaphthalene	7.7	U	7.7	3.8
91-20-3	Naphthalene	7.7	U	7.7	3.8
85-01-8	Phenanthrene	7.7	U	7.7	2.8
129-00-0	Pyrene	4.3	J	7.7	3.8

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	102		36-131

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GC/MS SEMI VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Savannah | Job No.: 680-106200-4

SDG No.: 680-106200-04

Client Sample ID: CV0509KK-CS6 | Lab Sample ID: 680-106200-62

Matrix: Solid | Lab File ID: 1YJ1730.D

Analysis Method: 8270D_LL_PAH | Date Collected: 10/07/2014 14:10

Extract. Method: 3546 | Date Extracted: 10/15/2014 14:21

Sample wt/vol: 30.02(g) | Date Analyzed: 10/17/2014 20:20

Con. Extract Vol.: 1(mL) | Dilution Factor: 10

Injection Volume: 2(uL) | Level: (low/med) Low

% Moisture: 5.2 | GPC Cleanup:(Y/N) N

Analysis Batch No.: 354069 | Units: ug/Kg

CAS NO.	COMPOUND NAME	RESULT	Q	RL	MDL
83-32-9	Acenaphthene	49	J	71	35
208-96-8	Acenaphthylene	71	U	71	35
120-12-7	Anthracene	120		71	35
56-55-3	Benzo[a]anthracene	450		71	35
50-32-8	Benzo[a]pyrene	430		71	13
205-99-2	Benzo[b]fluoranthene	660		71	35
191-24-2	Benzo[g,h,i]perylene	310		71	35
207-08-9	Benzo[k]fluoranthene	210		71	21
218-01-9	Chrysene	460		71	35
53-70-3	Dibenz(a,h)anthracene	170		71	35
206-44-0	Fluoranthene	740		71	35
86-73-7	Fluorene	48	J	71	35
193-39-5	Indeno[1,2,3-cd]pyrene	220	J	71	35
90-12-0	1-Methylnaphthalene	71	U	71	33
91-57-6	2-Methylnaphthalene	71	U	71	35
91-20-3	Naphthalene	71	U	71	35
85-01-8	Phenanthrene	470		71	25
129-00-0	Pyrene	740		71	35

CAS NO.	SURROGATE	%REC	Q	LIMITS
84-15-1	o-Terphenyl	0	D	36-131